



# Case Study

## Agentic AI with Madevo

### The Challenge A lack of visibility

Telecom networks and the data centres that power them have become extraordinarily complex to operate. Operators manage equipment from many different vendors, cloud systems, and massive streams of real-time data across the entire infrastructure. Yet most of this data stays fragmented and unused because it is difficult to combine, analyse quickly, and turn into fast, practical actions.

Teams still depend on engineers manually reviewing dashboards, alarms, metrics, tickets, and logs to understand what is happening and decide what to do next. The result is slower response times, higher operating costs, and real difficulties in scaling next-generation services efficiently.

The biggest gap today is no longer a lack of visibility. It is the missing layer of intelligent, autonomous automation that can detect problems and resolve them without constant human intervention. This challenge is growing as operators expand cloud-native networks, edge computing, and large-scale data centres while facing a serious shortage of experienced staff.

### The Approach Develop autonomous AI agents

Madevo and JOINER have partnered to develop autonomous AI agents for real telecom and data centre operations. JOINER provides the essential national-scale testing environment with realistic, multi-layer carrier-grade infrastructure that is almost impossible to replicate independently.

Madevo's agentic AI agents are integrated directly into JOINER's environment. This gives the agents secure, live access to monitoring systems, network performance data, alarms, service metrics, configuration tools, ticketing systems, and infrastructure telemetry.

The solution combines agentic large language models with memory and advanced reasoning, real-time data processing, and secure automations.

Testing takes place inside JOINER's unique national facilities, including the AI Acceleration Facility for high-performance reasoning and connected data centre emulation environments. The agents are validated against genuine operational scenarios such as network faults, congestion, cross-vendor incidents, performance problems, automated triage, ticket creation, escalation, and human-in-the-loop approvals.

This is a highly complex and time-consuming project that would be extremely difficult for industry to develop and validate at this scale on its own. JOINER is critical because its programmable multi-site national fabric, combined with dedicated AI Acceleration and data

centre-connected facilities, enables early validation under true multi-vendor, multi-layer conditions instead of simplified simulations.

The primary advantage of utilising JOINER is that it provides an experimentation platform that can accommodate such complexity and authenticity in testing which, in many cases, would be extremely challenging for the industry alone, given the necessity for genuine multi-vendor, multi-layer environments and the extensive resources required for robust validation. By leveraging JOINER's programmable, multi-site national infrastructure—enhanced with dedicated AI Acceleration and data centre-connected facilities—the project enables testing and validation in real operational scenarios rather than simple simulations, ensuring solutions that are both scalable and reliable.

## The Outcomes Deployable AI agents for networks and data centres



This collaboration can deliver deployable autonomous AI agents for telecom networks and data centre operations.

It demonstrated how agents deliver continuous real-time monitoring, instant anomaly and fault detection, cross-system root cause analysis, automatic creation of detailed incident tickets, intelligent escalation, and clear remediation recommendations, significantly reducing manual monitoring and engineer workload.

Target use cases include telecom operator networks, telco cloud and large-scale datacenter operations, edge computing infrastructure, multi-vendor service provider environments, and Network Operations Centres.

Live demonstrations are possible inside JOINER to illustrate a full closed loop scenario where an AI agent detects an issue from live data, correlates alarms to identify the root cause, automatically creates a detailed ticket, delivers actionable recommendations, and completes the workflow with human approval where required.

Expected benefits include significantly faster mean time to detect and resolve issues, better use of operational data, improved service reliability and network uptime, and lower overall support costs.

Commercial readiness milestones include validated agent workflows in realistic national environments, proven integrations with standard operations and ticketing platforms, scalable secure architecture, and reference implementations for operators and datacenter providers.

## The Partners

Delivered in collaboration with the following organisations

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This work is delivered via a partnership between University of Bristol and Madevo.

Interested in learning more? Get in touch at [joiner-project@bristol.ac.uk](mailto:joiner-project@bristol.ac.uk).

